

AMENDMENTS TO THE CLAIMS

1. (original) An integrated circuit (IC) chip package, comprising:
 - a substrate with an IC chip mounted thereon, wherein the IC chip has an active surface;
 - a grease in contact with the active surface of the IC chip; and
 - a container disposed upon the substrate, wherein the grease is enclosed within the container and the substrate, and wherein the container is in contact with the active surface of the IC chip.
2. (original) An IC chip package as defined in Claim 1, wherein the IC chip is a flip chip on a flex substrate.
3. (withdrawn) An IC chip package as defined in Claim 1, wherein the substrate comprises a metallic heat sink.
4. (withdrawn) An IC chip package as defined in Claim 3, further comprising an electrical connector extending from the active surface, wherein the electrical connector is in electrical communication with the IC chip, and wherein the electrical connector comprises a bond wire between the active surface and a printed circuit board disposed upon the heat sink.
5. (withdrawn) An IC chip package as defined in Claim 1, wherein:
 - the substrate comprises a metallic heat sink;

the container comprises a metal; and

the container contacts a printed circuit board disposed upon the substrate.

6. (withdrawn) An IC chip package as defined in Claim 1, further comprising a flip chip disposed over the active surface of the IC chip.

7. (currently amended) An IC chip package as defined in Claim 1, further comprising:

a flip chip disposed over the active surface of the IC chip; and

an electrical connector extending from the active surface, wherein

the electrical connector is in ~~electrical communication~~ electrical communication with the IC chip;

the electrical connector of the IC chip comprises a bond wire;

the bond wire is in contact with the grease;

the container comprises a metal; and

the container is disposed over the IC chip and the flip chip.

8. (original) An IC chip package as defined in Claim 1, wherein:

the IC chip is a flip chip; and

the substrate is a flex substrate.

9. (original) An IC chip package as defined in Claim 8, wherein the container comprises a dam structure that secures the container to the substrate.

10. (withdrawn) An IC chip package as defined in Claim 9, further comprising an electrical connector extending from the active surface, wherein

the electrical connector is in electrical communication with the IC chip; and

the container and the substrate together enclose the grease, the electrical connector, and the IC chip.

11. (cancelled)

12. (cancelled)

13. (original) An IC chip package as defined in Claim 1, wherein the grease has a thermal conductivity in a range from about 2 Watts/m·K to about 5 Watts/m·K.

14. (original) An IC chip package as defined in Claim 1, wherein the grease has a dielectric constant in a range from less than about 6 to about 9.

15. (original) An IC chip package as defined in Claim 1, wherein the grease has a melting point in a range from about 190°C to about 220°C.

16. (previously presented) An IC chip package as defined in Claim 1, wherein the grease has a weight loss at about 100°C after 30 days of less than about 0.15%.

17. (currently amended) An integrated circuit (IC) chip package with IC chip elements having an IC chip with an active surface, the active surface having extending therefrom an electrical connector in electrical communication with the IC chip, the IC chip being mounted upon a substrate, the IC chip package comprising:

a grease in contact with the active surface of the IC chip; and

a container disposed upon the substrate and enclosing a volume external to the IC chip elements, wherein the grease is enclosed within the container and the substrate, and wherein the grease fills the volume enclosed by the container and the container is in contact with the active surface of the IC chip.

18. (cancelled)

19. (original) An IC chip package as defined in Claim 17, wherein the grease is in contact with a dam structure.

20. (cancelled)

21. (original) An IC chip package as defined in Claim 17, wherein the grease contacts the container.

22. (original) An IC chip package as defined in Claim 17, wherein the grease has a thermal conductivity in a range from about 2 Watts/m·K to about 5 Watts/m·K.

23. (original) An IC chip package as defined in Claim 17, wherein the grease has a dielectric constant in a range from less than about 6 to about 9.

24. (original) An IC chip package as defined in Claim 17, wherein the grease has a melting point in a range from about 190°C to about 220°C.

25. (original) An IC chip package as defined in Claim 17, wherein the grease has a weight loss at about 100°C after 30 days of less than about 0.15%.

26. (cancelled)

27. (original) An IC chip package as defined in Claim 17, wherein the container makes contact with the substrate to enclose the active surface of the IC chip.

28. (original) An IC chip package as defined in Claim 17, wherein the IC chip is a flip chip on a flex substrate.

29. (withdrawn) An IC chip package as defined in Claim 17, wherein the substrate comprises a metallic heat sink.

30. (withdrawn) An IC chip package as defined in Claim 29, wherein the electrical connector comprises a bond wire between the active surface and a printed circuit board disposed upon the heat sink.

31. (withdrawn) An IC chip package as defined in Claim 17, wherein:
- the substrate comprises a metallic heat sink;
 - the container comprises a metal; and
 - the container contacts a printed circuit board disposed upon the substrate.
32. (withdrawn) An IC chip package as defined in Claim 17, further comprising:
- a flip chip disposed over the active surface of the IC chip.
33. (withdrawn) An IC chip package as defined in Claim 17, further comprising a flip chip disposed over the active surface of the IC chip, wherein:
- the electrical connector of the IC chip comprises a bond wire;
 - the bond wire is in contact with the grease;
 - the container comprises a metal; and
 - the container is disposed over the IC chip and the flip chip.
34. (original) An IC chip package as defined in Claim 17, wherein:
- the IC chip is a flip chip; and
 - the substrate is a flex substrate.
35. (original) An IC chip package as defined in Claim 34, wherein the container is a dam structure that secures the container to the substrate.

36. (withdrawn) An IC chip package as defined in Claim 34, wherein the container and the substrate together enclose the grease, the electrical connector, and the IC chip.

37. (withdrawn) An IC chip package having an IC chip with an active surface, the active surface having an electrical connector extending therefrom in electrical communication with the IC chip, the IC chip being mounted upon a board-on-chip (BOC) substrate having a first side and an opposite second side, the IC chip package comprising:

a grease in contact with the active surface of the IC chip; and

a container disposed upon the BOC substrate, wherein the grease is enclosed within the container and the substrate, wherein:

the IC chip is mounted on the first side of the BOC substrate;

the IC chip package further comprises a second IC chip; and

the second IC chip is disposed over the first side of the BOC substrate.

38. (withdrawn) An IC chip package as defined in Claim 37, wherein:

the IC chip package further comprises a third IC chip, wherein the third IC chip is disposed over the first side of the BOC substrate and over the second IC chip.

39. (currently amended) An IC chip package having an IC chip with an active surface, the active surface having an electrical connector extending therefrom in electrical communication with the IC chip, the IC chip being mounted upon a board-on-chip (BOC) substrate having a first side and an opposite second side, the IC chip package comprising:

a grease in contact with the active surface of the IC chip; and

a container disposed upon the BOC substrate, wherein the grease is enclosed within the container and the substrate, wherein:

the IC chip is mounted on the first side of the BOC substrate;

the IC chip package further comprises a second IC chip; and

the second IC chip is disposed over the second side of the BOC substrate.

40. (currently amended) An IC chip package as defined in Claim 39, wherein:

the IC chip package further comprises a third IC chip, wherein ~~he~~ the third IC chip is disposed over the second side of the BOC substrate and over the second IC chip.

41. (currently amended) An IC chip package with IC chip elements having an IC chip with an active surface, the active surface having an electrical connector extending therefrom in electrical communication with the IC chip, the IC chip being mounted upon a substrate, the IC chip package comprising:

a grease in contact with the active surface of the IC chip, the grease having:

a thermal conductivity in a range from about 2 Watts/m·K to about 5 Watts/m·K;

a dielectric constant in a range from less than about 6 to about 9; and

a melting point in a range from about 190°C to about 220°C; and

a container disposed upon the substrate, the container enclosing a volume external to the IC chip elements, wherein the grease is enclosed within the container and the substrate, and the grease fills the volume enclosed by the container and the container is in contact with the active surface of the IC chip.

42. (withdrawn) An IC chip package as defined in Claim 41, further comprising:

a flip chip disposed over the active surface of the IC chip.

43. (currently amended) An IC chip package with IC elements having an IC chip with an active surface, the active surface having extending therefrom an electrical connector in electrical communication with the IC chip, the IC chip being mounted upon a substrate, the IC chip package comprising:

a grease in contact with the active surface of the IC chip; and

a container composed of metal, having a thermal conductivity that is greater than a thermal conductivity of the grease, disposed upon the substrate, and in contact with both the grease and the substrate, the container enclosing a volume external to the IC elements, wherein:

the grease is enclosed within the container and the substrate, and the grease fills the volume enclosed by the container; and

the container and the substrate enclose the active surface of the IC chip.

44. (withdrawn) The IC chip package as defined in Claim 43, wherein the grease has:

a thermal conductivity in a range from about 2 Watts/m·K to about 5 Watts/m·K;

a dielectric constant in a range from less than about 6 to about 9; and

a melting point in a range from about 190° C to about 220° C.